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EXAMINER	
BODDIE, WILLIAM	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/693,022	BULOVIC ET AL.	
	Examiner	Art Unit	
	William L. Boddie	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,7,8,12-14,16-18,20-22,26 and 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 7-8, 12-14, 16-18, 20-22, and 26-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/28/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In an amendment dated, February 21st 2007, the Applicant amended claims 1, 14, 16-17, 22 and 26. The Applicant also cancelled claims 2, 15 and 24. Currently claims 1, 7-8, 12-14, 16-18, 20-22, and 26-27 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 21st 2007 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 7-8, 12-14, 16-18, 20-22, and 26-27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 7, 16, 18 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. As currently written each of these dependent claims already requires photodetectors be located on the lower surface of the transparent substrate. With the limitations of these claims additional photodetectors are required on additional surfaces of the substrate. The Examiner was unable to locate in the original disclosure any discussion of photodetectors located along both the lower surface and the edge or the upper surface of the substrate.

Response to Amendment

6. The amendment filed February 21st 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: claims 7, 16, 18 and 26 require that additional photodetectors be located on the upper surface of the transparent substrate (claims 7 and 26) and along the side surface of the transparent substrate (claims 16 and 18) in addition to the independently claimed lower surface arranged photodetectors.

7. In short, each of these claims requires that the photodetectors be located on two surfaces of the transparent substrate. The Examiner was unable to find any enabling disclosure within the current application to support such embodiments.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 7-8, 13-14, 16-17, 20, 22 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2002/0130326) in view of Yuyama et al. (US 6,069,676).

With respect to claim 1, Tamura discloses, an array, comprising:

a plurality of light emitting devices (12-14 in fig. 3a,b) disposed over a transparent substrate (10 in fig. 3b), the transparent substrate having an upper surface (bottom of 10 in fig. 3b) proximal to the light emitting devices, a lower surface distal from the light emitting devices (top of 10 in fig. 3b) and a plurality of side surfaces (right side of 10 in fig. 3b), each of the side surfaces being substantially perpendicular to the upper surface (clear from fig. 3b); and

at least one photodetector (15-17 in fig. 3a/b) that detects light emitted through the substrate from the light emitting devices (para. 45).

Tamura does not expressly disclose that the at least one photodetector is arranged on the lower surface of the transparent substrate.

Yuyama discloses, an array, comprising:

a plurality of light emitting devices (2a-c in fig. 11) disposed under a transparent substrate (4 in fig. 11); and

at least one photodetector (10 in fig. 11) arranged on an opposite surface of the transparent substrate (clear from fig. 11) for detecting light emitted through the substrate from the light emitting devices.

Yuyama and Tamura are analogous art because they are both from the same field of endeavor namely, detecting light emitted by LEDs and compensating the driving of the LEDs based on the detected light.

At the time of the invention it would have been obvious to one or ordinary skill in the art to locate the photosensors of Tamura on the lower surface (top of 10 in fig. 3b) of the transparent substrate of Tamura, as taught by Yuyama.

The motivation for doing so would have been to avoid obstructing the exiting light (Yuyama; col. 6, lines 32-35).

With respect to claim 7, Tamura and Yuyama disclose, the array of claim 1 (see above).

The above embodiment of Tamura fails to disclose locating a photodetector over outer periphery edges of the upper surface.

Tamura further discloses in an alternative embodiment, locating a photodetector (9 in fig. 2a/b) over outer periphery edges of the upper surface (10 in fig. 2b).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the alternative embodiment of Tamura teaching of upper surface photodetectors with the already combined first embodiment of Tamura and Yuyama, which teaches lower surface photodetectors.

The motivation for doing so would have been to achieve a more accurate feedback detection signal.

With respect to claim 8, Tamura and Yuyama disclose, the array of claim 1 (see above).

Tamura further discloses, a feedback circuit (5 in fig. 1) that measures a brightness level for each of the plurality of light emitting devices and varies a voltage applied to individual ones of the light emitting devise to maintain a brightness level of each of the light emitting devices at a substantially constant level (paras. 12-13).

It should be noted that Yuyama additionally discloses, a feedback circuit (11a-c in fig. 5) that measures a brightness level for each of the plurality of light emitting devices and varies a voltage applied to individual ones of the light emitting devise to maintain a brightness level of each of the light emitting devices at a substantially constant level (col. 3, lines 46-54; for example).

With respect to claim 13, Tamura and Yuyama disclose, the array of claim 1 (see above).

Tamura further discloses, a display (col. 1, lines 6-8) comprising an array of light emitting devices.

With respect to claim 14, Tamura discloses, a method for forming an array, comprising:

forming a plurality of light emitting devices (12-14 in fig. 3a/b) disposed over a transparent substrate (10 in fig. 3b), said transparent substrate having an upper surface (bottom of 10 in fig. 3b) proximal to the light emitting devices, a lower surface distal from

the light emitting devices (top of 10 in fig. 3b) and at least one side surface (right side of 10 in fig. 3b) substantially perpendicular to said upper surface of the substrate; and

forming a photodetector (15-17 in fig. 3a/b) that detects light emitted through the substrate from the light emitting devices (para. 45).

Tamura does not expressly disclose that the at least one photodetector is arranged on the lower surface of the transparent substrate.

Yuyama discloses, a method for forming an array, comprising:

forming a plurality of light emitting devices (2a-c in fig. 11) disposed under a transparent substrate (4 in fig. 11); and

forming at least one photodetector (10 in fig. 11) arranged on an opposite surface of the transparent substrate (clear from fig. 11) for detecting light emitted through the substrate from the light emitting devices.

At the time of the invention it would have been obvious to one or ordinary skill in the art to locate the photosensors of Tamura on the lower surface (top of 10 in fig. 3b) of the transparent substrate of Tamura, as taught by Yuyama.

The motivation for doing so would have been to avoid obstructing the exiting light (Yuyama; col. 6, lines 32-35).

With respect to claim 16, Tamura and Yuyama disclose, the method of claim 14 (see above).

Tamura further discloses, forming the photodetector on the side surface of the substrate (clear from fig. 3b).

With respect to claim 17, Tamura and Yuyama disclose, the method of claim 14 (see above).

Tamura further discloses, wherein the photodetector includes a plurality of photodetectors (clear from fig. 3a).

It should be additionally noted that Yuyama also discloses, a plurality of photodetectors (fig. 8; for example).

With respect to claim 20, claim 20 is seen as sufficiently equivalent to claim 8. As such claim 20 is rejected on the same merits shown above in claim 8.

With respect to claim 22, Tamura discloses, a method for maintaining a substantially constant brightness in a plurality of light emitting devices (12-14 in fig. 3a/b) disposed over an upper surface of a transparent substrate (10 in fig. 3b) in an array, comprising:

measuring light emitted from each of the light emitting devices (12-14 in fig. 3a/b; para. 12) by a photodetector (15-17 in fig. 3a/b); and

varying the voltage level applied to each of the light emitting devices to maintain a substantially constant brightness level of light emitted from the light emitting devices (col. 2, lines 26-28; para. 40).

Tamura does not expressly disclose that the photodetector is arranged on the lower surface of the transparent substrate.

Yuyama discloses, a method for maintaining a substantially constant brightness in a plurality of light emitting devices, comprising:

measuring light emitted from each of the light emitting devices (2a-c in fig. 11) by a photodetector (10 in fig. 11) formed on a lower surface of a transparent substrate (4 in fig. 11),

varying the voltage level applied to each light emitting device to maintain a constant brightness level (col. 3, lines 46-54; for example).

At the time of the invention it would have been obvious to one or ordinary skill in the art to locate the photosensors of Tamura on the lower surface (top of 10 in fig. 3b) of the transparent substrate of Tamura, as taught by Yuyama.

The motivation for doing so would have been to avoid obstructing the exiting light (Yuyama; col. 6, lines 32-35).

With respect to claim 26, Tamura discloses, the method of claim 22 (see above).

The above embodiment of Tamura fails to disclose locating a photodetector over outer periphery edges of the upper surface.

Tamura further discloses in an alternative embodiment, locating a photodetector (9 in fig. 2a/b) over outer periphery edges of the upper surface (10 in fig. 2b).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the alternative embodiment of Tamura teaching of upper surface photodetectors with the already combined first embodiment of Tamura and Yuyama, which teaches lower surface photodetectors.

The motivation for doing so would have been to achieve a more accurate feedback detection signal.

With respect to claim 27, Tamura and Yuyama disclose, the method of claim 22 (see above).

Tamura further discloses, wherein varying the voltage level applied to each of the light emitting devices further comprises generating a compensation factor for each of the light emitting devices (para. 40) and applying the compensation factor to a voltage applied to the corresponding light emitting device (para. 40).

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2002/0130326) in view of Yuyama et al. (US 6,069,676) and further in view of Cok (US 7,026,597).

With respect to claim 18, Tamura and Yuyama discloses, the method of claim 17 (see above).

Tamura further discloses, that photodetectors are formed on the side surfaces (18 in fig. 3b).

Neither Yuyama nor Tamura expressly disclose, that the photo detectors are formed on each side surface.

Cok discloses, forming photodetectors on each edge of a display (20 in fig. 5).

Cok, Yuyama and Tamura are analogous art because they are from the same field of endeavor namely, placement of photodetectors within a display.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include photodetectors along each side as taught by Cok in the display of Yuyama and Tamura.

The motivation for doing so would have been improved illumination detection (Cok; col. 1, lines 65-67).

11. Claims 12 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura et al. (US 2002/0130326) in view of Yuyama et al. (US 6,069,676) and further in view of Yamazaki et al. (US 6,424,326).

With respect to claim 12, Tamura and Yuyama disclose, the array of claim 8 (see above).

Tamura further discloses, wherein the feedback circuit (5 in fig. 1) includes a compensation factor generator (5 in fig. 1) for generating a compensation factor for each of the plurality of light emitting devices (para. 40).

Neither Yuyama nor Tamura expressly disclose, a memory array for storing the compensation factor for each of the plurality of light emitting devices.

Yamazaki discloses, a display detecting brightness (fig. 1) and a memory array (204 in fig. 6) for storing a compensation factor for each of the plurality of light emitting devices (col. 12, lines 21-55).

Yamazaki, Yuyama and Tamura are analogous art because they are all directed to a similar problem solving area, namely correcting uneven display luminance.

At the time of the invention it would have been obvious to one of ordinary skill in the art to store the correction factors generated by Yuyama and Tamura in a memory array as taught by Yamazaki.

The motivation for doing so would have been to store an ideal luminance to compare the current state of the display against, thus achieving a more uniform and ideal luminance (Yamazaki; col. 12, lines 28-44).

With respect to claim 21, as shown above Tamura and Yuyama disclose claim 14. The further limitations of claim 21 are identical to those of claim 12. Therefore claim 21 is rejected on the same merits shown above in claim 12.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WLB
4/27/07

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